EXPANDED COURSE DESCRIPTION
EARTH, SPACE SCIENCE AND ENGINEERING
Lassonde School of Engineering
Earth and Space Science and Engineering
LE / ESSE 4051 3.0 SECTION M
SYNOPTIC METEOROLOGY II
FALL 2017 / WINTER 2018
Last Modified Date: 08/18/2017

COURSE CALENDAR DESCRIPTION

Synoptic and mesoscale weather systems with emphasis on prediction: focus on forecasting with emphasis on
the interpretation of numerical weather prediction models such as the GEM, MC2 and SEF models. Satellite
and radar image interpretation for nowcasting. Two lecture hours, three laboratory hours. Winter term. Three
credits. Prerequisite: LE/ESSE 4050 3.00. Prior to Fall 2014: Prerequisite: LE/EATS 4050 3.00. Prior to
Summer 2013: Prerequisite: SC/EATS 4050 3.00.

INSTRUCTOR(S)

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<tr>
<th>Name</th>
<th>Section / Format / Term</th>
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<td>Prout, Melville</td>
<td>Sec. M / LECT / W</td>
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ADDITIONAL INFORMATION

Format: Two lecture hours. Three laboratory hours. One term. Three credits.

Text: Notes and labs will be supplied in class.


Lecture Content:
- Interpretation of radar and satellite imagery including conveyor belts.
- Description and characteristics of NWP products such as ensemble forecasts.
- Planetary boundary layer and mid-latitude synoptic scale weather systems: structure, characteristics, cloud and precipitation patterns and profiles including indicators for development.
- Jet streams, tropopause, upper fronts: structure, characteristics and diagnostics
- Surface wind diagnosis and forecasting.
- Diagnosis of surface and upper air features for severe weather potential and snow squall development.
- Secondary and mesoscale circulations including monsoon circulations over NA.

Laboratory Content:
- Applications of radar and satellite imagery, including satellite dynamics, to surface and upper air
  analysis.
- Applications of Canadian NWP products: four panel charts, ensemble products, output statistics.
- Diagnosis: vertical motion, weather elements, surface winds using geostrophic wind scale, surface and
  upper air indicators for severe weather and snow squall potential.
- Application of short range forecasting techniques to surface, upper air features, and weather elements.
Note: Access to a computer and some knowledge of the Internet, while not absolutely necessary would be beneficial.

ACADEMIC INTEGRITY LINKS
- Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
- Academic Integrity - http://lassonde.yorku.ca/academic-integrity

STUDENT LINKS
- Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
- Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
- Counselling and Disability Services - http://cds.info.yorku.ca/

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.
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